

Application No. 09/681,993
Amendment dated January 14, 2003
Reply to Office Action of October 22, 2003

RD-29,318-2

Amendments to the Specification

Please replace the Abstract of the disclosure to read as follows:

A method and system for reducing stress corrosion cracking in a hot water system, such as a nuclear reactor, by reducing the electrochemical corrosion potential of components exposed to high temperature water within the structure. The method ~~comprises~~ includes the steps of: providing a reducing species to the high temperature water; and providing a plurality of noble metal nanoparticles having a mean particle size of up to about 100 nm to the high temperature water during operation of the hot water system. The catalytic nanoparticles, which may ~~comprise~~ contain at least one noble metal, form a colloidal suspension in the high temperature water and provide a catalytic surface on which a reducing species reacts with least one oxidizing species present in the high temperature water. The concentration of the oxidizing species is reduced by reaction with the reducing species on the catalytic surface, thereby reducing the electrochemical corrosion potential of the component.

Please replace paragraph [0036] of the disclosure to read as follows:

[0036] Several options are available for introducing the catalytic nanoparticles in situ into the ~~the high~~ temperature water to reduce the ECP. The catalytic nanoparticles can be introduced homogeneously so as to create colloidal floaters within the BWR, wherein the catalytic nanoparticles remain in colloidal suspension indefinitely due to Brownian motion. Alternatively, the catalytic nanoparticles can be introduced heterogeneously such that the catalytic nanoparticles deposit on the BWR component surfaces.